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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,205	12/01/2003	Nobuhiro Takano	03280090US	9849

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EXAMINER	
BERHANU, SAMUEL	
ART UNIT	PAPER NUMBER
2838	

DATE MAILED: 12/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/724,205	TAKANO ET AL.	
	Examiner	Art Unit	
	Samuel Berhanu	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/3/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagai et al. (US 6,124,700) in view of Davis (3,599,070).

Regarding Claim 1, Nagai et al. disclose in Figure 7, a universal battery charger for charging batteries with different number of cells connected in series, comprising: a power supply (15) circuit that produces a predetermined number of voltages (15,16 different in level for applying selected one of the predetermined number of voltages to a battery, the predetermined number of voltages including a highest voltage (15, 4.2V) and a lowest voltage (16, 4.0V); a switch (14) that is connected between the power supply circuit and the battery and is turned ON to allow the selected one of the predetermined number of voltages to the battery and OFF to interrupt the power supply circuit from the battery; and a control device (21) that controls the power supply circuit to produce a voltage to be applied to the battery and also controls the switch so that a rush current does not flow in the battery when the voltage to be applied to the battery is switched from one level to another level (Column 25, lines 1-45). Nagai et al. do not disclose the control device controls the switch so that a rush current does not flow in the battery when the voltage to be applied to the battery and also controls the switch so that a rush current does not flow in the battery when the voltage to be applied to the battery

is switched from one level to another level. However, Davis discloses in Figure 1 the control device (24) controls the switch so that a rush current does not flow in the battery when the voltage to be applied to the battery and also controls the switch so that a rush current does not flow in the battery when the voltage to be applied to the battery is switched from one level to another level (Column 5, lines 19-36). It would have been obvious to a person having ordinary skill in the art at the time of the invention to add a control means which prevents a rush current going to the battery as taught by Davis in Nagai et al. Charging equipment in order to protect the drastic reduction of battery life due to in-rush current.

Regarding Claim 2, Nagai et al. disclose in Figures 7 and 9, a battery voltage detecting circuit (18) that detects a voltage across the battery (17), wherein the control device controls the power supply circuit to produce a voltage equal to or close to the voltage detected by the battery voltage detecting circuit and further controls the switch to turn on (Column 26, lines 55-59, noted that when the battery voltage reaches at 4.2V the charging circuit charges the battery at 4.0V).

Regarding Claim 3, Nagai et al. disclose in Figures 7, 8 and 10, wherein the control device controls the switch to turn on after expiration of a predetermined period of time from a time when the voltage equal to or close to the voltage detected by the battery voltage detecting circuit is produced by the power supply circuit (Column 27, lines 55-69, Column 28, lines 1-44).

Regarding Claim 4, Nagai et al. disclose in Figures 7, wherein the voltage close to the voltage detected by the battery voltage detecting circuit is a voltage above and

closest to the voltage detected by the battery voltage detecting circuit among the predetermined number of voltages (Column 28, lines 7-20).

Regarding Claim 5, Nagai et al. disclose in Figures 7 and 14, wherein the control device further controls the power supply circuit to produce the highest voltage after the switch is turned on (Column 28, lines 53-67).

Regarding Claim 6, Nagai et al. disclose in Figure 7, a battery connection detecting device that detects that the battery is connected for being charged, wherein when the battery connection detecting device detects that the battery is connected (the battery detection circuit is in electrical contact with the battery via a circuit wire), the battery voltage detecting circuit detects a voltage across the battery and the control device controls the power supply circuit to produce the voltage equal to or close to the voltage detected by the battery voltage detecting circuit, and thereafter controls the switch to turn on (Column 28, lines 7-20).

Regarding Claim 7, Nagai et al. disclose in Figure 7, wherein when the battery connection detecting device detects that the battery is not connected, the control device controls the power supply circuit to produce the lowest voltage (Column 25, lines 59-67). (When the battery is not in electrical connection with the circuit the charging source doesn't output a charging voltage 4.2 or 4.0, and it is an open circuit voltage and the charging voltage most likely would be zero)

Regarding Claim 8, Nagai et al. disclose in Figure 7, battery charger according to claim 2, wherein when a difference between the voltage detected by the battery voltage detecting circuit and the voltage produced by the power supply circuit falls within a

predetermined range, the control device controls the switch to turn on. (Column 27, lines 14-37) .

Regarding Claim 9, Nagai et al. disclose Figure 7 and 14, wherein the voltage close to the voltage detected by the battery voltage detecting circuit is a voltage above and closest to the voltage detected by the battery voltage detecting circuit among the predetermined number of voltages (Column 25, lines 1-45).

Regarding Claim 10, Nagai et al. disclose Figure 7 and 14, wherein the control device further controls the power supply circuit to produce the highest voltage after the switch is turned on (the switch is on and charging voltage of 4.2V pass to the battery and the control circuit controls the operation accordingly).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel Berhanu whose telephone number is 571-272-8430. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SB

Edward H. Tso
Primary Examiner